

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) In an electrolyte solution containing at least selected one of sulfuric acid and copper sulfate used to manufacture an electrolytic copper foil by electrolysis with current density 20 A/dm² to 100 A/dm², the electrolyte solution for manufacturing the electrolytic copper foil having rough surface and polished surface wherein said rough surface has a roughness Rz measured by an IPC TM 650 2.2.17A method less than 2.0um without surface treatment, based on the 1-liter electrolyte solution, comprising:

0.5 to 40 mg of at least one sulfur compound selected from a disulfur compound, dialkylamino- T-oxomethyl- thioalkan sulfonic acid, and thioalkan sulfonic acid salt;

1 to 1000 mg of at least more than one kind of an organic compound selected from a group consisting of a poly akylene glycol-type surfactant and low molecular gelatin; and

0.1 to 80 mg of chlorine ion added.

2. (Original) The electrolyte solution of claim 1, wherein the dialkylamino- T-oxomethyl- thioalkan sulfonic acid or the salt thereof is dithiocarbamic acid compound or salt thereof.

3. (Original) The electrolyte solution of claim 1, wherein additives of the electrolyte solution further include 0.1 to 8 mg/L of thiourea derivative, a nitrogen compound.

4. (Original) The electrolyte solution of claim 1, wherein the disulfur compound is SPS (Bis-(3-sulfopropyl)-disulfide, disodium salt)).

5. (Original) The electrolyte solution of claim 1, wherein the organic compound is a poly akylene glycol-type surfactant.

6. (Currently Amended) A method of manufacturing an electrolytic copper foil having rough surface and polished surface wherein said rough surface has a roughness Rz measured by an IPC TM 650 2.2.17A method less than 2.0um without surface treatment, said method comprising steps of:

- A) preparing an electrolyte solution added with 0.5 to 40 mg of at least one sulfur compound selected from a disulfur compound, dialkylamino- T-oxomethyl- thioalkan sulfonic acid, and thioalkan sulfonic acid salt, 1 to 1000 mg of at least more than one kind of an organic compound selected from a group consisting of a poly aklylene glycol-type surfactant and low molecular gelatin, and 0.1 to 80 mg of chlorine ion, based on the 1-liter electrolyte solution;
- B) generating the electrolytic copper foil on a cathode by flowing electricity, having current density 20A/dm² to 100A/dm², after impregnating an anode and the cathode with the electrolyte solution..

7. (Original) The method of claim 6, wherein the dialkylamino- T-oxomethyl- thioalkan sulfonic acid is dithiocarbamic acid compound, and the thioalkan sulfonic acid salt is dithiocarbamic salt.

8. (Original) The method of claim 6, wherein 0.1 to 8 mg/L of thiourea derivative, a nitrogen compound is further included in the electrolyte solution.

9. (Original) The method of claim 6, wherein the disulfur compound is SPS (Bis-(3-sulfopropyl)-disulfide, disodium salt).